DEVELOPMENT OF SCALE FOR ASSESSMENT OF STRESS IN INDIAN ADOLESCENTS: A SELF AND TEACHER REPORT MEASURE

By
RAHUL SHARMA
Ph.D. in Clinical Psychology

Under the Guidance of
DR. MASROOR JAHAN, M.Phil. M & SP, Ph.D.
Additional Professor
Department of Clinical Psychology,
Ranchi Institute of Neuro-Psychiatry and Allied Sciences (RINPAS),

RANCHI INSTITUTE OF NEURO–PSYCHIATRY & ALLIED SCIENCES (RINPAS)
KANKE, RANCHI-834 006 (JHARKHAND)

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STATE OF THE ART

Adolescence is the phase of life between childhood and adulthood, from ages 10 to 19. As a part of achieving autonomy, a critical task of adolescence is the establishment of a stable sense of identity. Adolescents need to acquire the social skills necessary to navigate an ever-expanding social environment and find friendship, romantic relationships, jobs, and a place within multiple social spheres (cote, 2009). Adolescent is characterised by a number of biological, cognitive and psychosocial changes of varying intensities (Susman & Dorn, 2009). The biological change involves remarkable growth and changes in physical appearance and biological functioning. The changes associated with puberty also affect the adolescent psychologically, in different ways. One of the most noticeable changes that occur during adolescence is in the cognitive processes, which involve the development of far more complex thinking and reasoning ability. The change in emotions, personality, relationships with others, and social contexts is characteristic of the rapid development of psychosocial processes during adolescence (McElhaney, Allen, Stephenson, & Hare, 2009). Children, parents, and adults who work with teenagers may find adolescence to be a stressful time. Children are dealing with the challenges of going through puberty, meeting changing expectations and coping with new feelings. Transitioning from elementary to middle or junior high school is another concern shared by many. Additionally, some children might experience issues like moving to a new town or dealing with a family member's death that others might not have to face. While some children find it more difficult to cope with their problems, the majority of children overcome these obstacles and mature into healthy adults.

Many researchers consider change to be an inherent component of stress and changes in social roles, biological functioning, cognitive development, and social environments are hallmarks of adolescence (Hamburg, 1974). Psychological changes (e.g., regarding personality/identity development, personal values, commitments and expectations, and emerging desires for autonomy and independence) and social changes (e.g., regarding role ambiguity, influence of peer-group, and sexual relationships) can give rise to parental conflicts, mood disorders, and risk taking behavior (Arnett, 1999; Marcia, 2006; Rosenberg, 1972). The importance of "transitions" or periods of change and adaptation have been emphasized in other conceptualization of stress (e.g., Felner, Farber, & Primavera, 1983). Many such transitions occur during adolescence, such as puberty, adjusting to shifting expectations and coping with new feelings.

Stress has traditionally been conceptualized in three ways; as a stimulus, which is an event or series of events; as a response (a psychophysiological reaction); or a transactional process, which is the interaction between an individual and their environment that results in an assessment of threat or loss (Caltabiano, Sarafino, & Byrne, 2008). Stress is a negative emotional experience; stress accompanied by predictable biochemical, physiological, cognitive, and behavioral change that is directed toward altering the stressful event or accommodating to its affects (Baum, 1990). Different theorists have used the term differently.

Some have viewed stress as the physiological arousal triggered by a distressing event, while others define stress as a stimulus event that presents difficult demands (for example, a divorce) (Cooper & Dewe, 2004). According to a growing body of research, stress is neither a stimulus nor a response but a special stimulus-response transaction in which one feels threatened (Fink, 2000). Stress as the circumstance in which transaction lead a person to perceive a discrepancy between the physical or physiological demands of a situation and the resource of his or her biological, psychological, or social system (Lazarus & Folkman, 1984; Lovallo, 2005). Stress is a process rather than merely a stimulus or a reaction, and an individual can actively affect how a stressor affects them through behavior, cognition and emotional strategies (Lazarus, 1999; Lazarus &Folkman, 1984). The question of whether events' "objective" or "subjective" characteristics influence well-being has been the subject of much discussion. Objective qualities are those inherent in events themselves, unaffected by differences among individuals who experience them. Those who experience them should respond in a manner that is largely similar. Subjective qualities are those that are affected by individuals' perceptions or cognitive appraisals of events. It is assumed that the amount of stress a person experience increases with stressor frequency, intensity and duration (Sarafino& Ewing, 1999).

Lazarus and Folkman's "stress-coping" theory (Lazarus & Folkman, 1984) provides an explanation for the psychological effects of an individual's interactions with his or her surroundings. Negative emotional reactions are specifically caused by an imbalance between perceived resources and external/internal demands. The appraisals of events in terms of perceived threat, control and access to coping resources mediates specific outcomes. A range of mental disorders, including both internalizing and externalizing difficulties, can develop as a result of a persistent imbalance in this transactional stress-coping system (Grant et al., 2006; Chandni et al., 2017). According to Fisher et al. (2011), the majority of teenagers worldwide reside in low and middle income countries (LMICs), where they are subjected to a variety of psychosocial adversities. At least one in five adolescents in urban India who attend school report experiencing high levels of stress on a daily basis (Mathew et al., 2015; Kumar & Akoijam, 2017; Deb et al., 2015; Bhaskar et al., 2015; Bhasin et al., 2010). Although the relative importance of stressors differs across studies, stressors that are frequently identified include peer group dynamics, academic pressure, negative family experiences, worries about education and careers, difficulties in romantic and sexual relationships, and difficulties in navigating peer pressure (Mathew et al., 2015; Latha & Reddy, 2006; Roy et al, 2015; Sibnath & Jiandong 2015).

Adolescents experiencing high level of stress were more prone to maladaptive and risky behaviors such as increased consumption of alcohol and drugs, unprotected sexual activities, physical inactivity, poor eating, and sleeping patterns (Bennett & Holloway, 2014; King et al., 2014). It is a general belief that factors in the family, student, and school environment may influence stress (Sun et al., 2013).

Studies carried out post 2000, found that the prevalence of stress among Indian adolescents varied between 13% and 45% (Talwar & Kumar, 2014). According to Patton et al. (2016), early detection and successful management of mental health issues in adolescence

can enhance long-term health outcomes and social adjustment. Comprehensive knowledge of environmental risks, signs and symptoms of psychological distress is necessary for such endeavours. Therefore, it is worthwhile to carry out additional research aimed at safeguarding the growing adolescent population.

Types of stress

According to Karl (1979) there are four types of stress: Time stress, Anticipatory stress, Situational stress, and Encounter stress.

***Time Stress*:** When people worry about time, or the lack of it, they experience time stress. They are anxious about the amount of work they have ahead of them and worry that they won't accomplish anything significant. They may feel miserable, stuck, or even hopeless. Frequent circumstances of time stress include racing to make a meeting on time or worrying about deadlines.

***Anticipatory Stress*:** The type of stress that individuals experience related to their future is described as anticipatory stress. There are instances when this stress is concentrated on a particular occasion, like a presentation that the person is about to give. On other occasions it can also be ill-defined and vague, such as a generalized feeling of dread about what lies ahead or a concern that "something will go wrong."

***Situational Stress*:** When someone is in a terrifying circumstance over which they have no control, they may be said to be experiencing a situational stress. But more often than not, it's a circumstance involving conflict or a loss of status or acceptance in the eyes of their group. Incidents that can lead to situational stress include being fired or being embarrassed in front of one's group.

***Encounter Stress*:** when you worry about interacting with a certain person or group of people you may not like, or you think that they're unpredictable, you are experiencing encounter stress. "Contact overload" can also lead to this kind of stress, which is the feeling of being overburdened or exhausted from interacting with an excessive number of people (Karl, 1979).

Symptoms of stress

Most of us are able to recognise the symptoms of stress, when we feel it. The signs and symptoms of stress can vary from person to person. The following are typical symptoms of stress (McNamara, 2004).

***Thoughts symptoms including*:** Concentration issues, poor memory, a sense of time urgency, difficulty making decisions, a decline in self-confidence, confused thinking, forgetfulness, making mistakes, an inability to plan ahead and a tendency to predict the worst, worrying or dwelling on issues rather than finding solutions, and a rigid or inflexible attitude in an attempt to maintain control.

***Physical reactions including*:** symptoms include headaches, tense muscles, particularly in the neck and shoulders, intense exhaustion, butterflies in the stomach, nausea, shakiness (such as

trembling hands or a shaky voice), clenching teeth or fists, a faster heartbeat, palpitations, a dry mouth, frequent urination, dizziness, and irregular breathing.

***Feelings symptoms including*:** aggressiveness, withdrawal, low self-esteem, moodiness, sobbing, cynicism, guilt, anxiety, panic attacks, depression, oversensitivity to criticism, feeling on edge, anger, hopelessness, hostility.

***Behavioral symptoms including*:** difficulty in time management, poor productivity, altered sleep pattern (can't sleep or oversleep), change in eating patterns (eating more or eating less), doing things hastily, fidgeting, nail biting, fiddling, non-stop talking etc. (McNamara, 2004).

Sources of stress

Three primary sources can be identified as the sources of stress: frustration, conflicting motivations, and pressure (Coleman, 1970).

1. **Frustration:** One way to characterize frustration is the impediment of an individual's goal-oriented behavior. As stated by Mangal (1984, pg. 46) "a wide range of environmental obstacles, both physical and social and the internal factors in the form of personal limitations, biological conditions and psychological barriers may lead to frustration of our needs, motives and efforts".
2. **Conflict of Motives:** When an individual has to choose between alternatives, the decision making can lead to stress. There exist four distinct types of conflicts of motives: approach - approach conflict, avoidance - avoidance conflict, approach - avoidance conflict and double approach - avoidance conflict.

- ***Approach-approach conflict:*** In this type of conflict a choice needs to be made between two desirable alternatives.
- ***Avoidance- avoidance conflict:*** In this type of conflict a choice needs to be made between two undesirable alternatives.
- ***Approach- avoidance conflict:*** when a single goal has both positive and negative aspects or consequences, it leads to conflict.
- ***Multiple approach-avoidance conflict:*** When an individual has to choose between the options that have both positive and negative consequences.

3. **Pressure:** It can be another source of stress that can be external or internal. Demands from the outside world, obligations and responsibilities that are primarily social in nature, as well as expectations from important people in our lives, all contribute to external pressures. With regard to internal pressures, Mangal (1984, pg. 46) states that "Internal pressures are caused by our own self for maintaining the picture of ourselves - as we think we could and should be".

In addition to the causes mentioned above, personality traits that predispose a person to stress can also cause stress. Individuals' responses to stress are influenced by a variety of factors, including past experiences, fundamental temperamental traits, and a sense of control over the stressful situation (Parmeswaran and Beena, 2004).

Some of the specific sources of stress can be:

- ***Life events:*** An individual can become stressed due to varied life event he or she might be experiencing. This could be the death of a loved one, major examination, separation etc.
- ***Daily hassles:*** Daily hassles are the everyday, minor annoyances that contribute to stress on a daily basis. Examples of these include long commutes, misplacing keys, time constraints, sleep deprivation, and loneliness.
- ***Interpersonal relationships:*** Relationships with friends or family can all be examples of interpersonal relationships. Individuals may argue with one another, which could affect the interpersonal relationship and cause stress. Interpersonal relationship problems can range from miscommunication to abuse and violence and can be detrimental to an individual's physical and mental health.
- ***Stress as a result of social conditions:*** Stress can also arise as a result of an individual's social circumstances. These social conditions can be linked to issues like pollution, discrimination, overcrowding, and technological advancements and changes.

Table

Some examples of physical, physiological, and psychosocial causes of stress

Physical stressors	Psychological stressors	Psychosocial stressors
Sleep debt	Excess anger	Fear of crime
Excess/too little exercise	Unrealistic beliefs	Poverty
Poor diet	Excess pessimism	Low social support
Drug misuse	Health worries	Bureaucracy/red tape
Alcohol misuse	Unrealistic expectations	Rude, aggressive, unhelpful people
Excess heat	Excessive worrying	
Excess caffeine	Unhappy childhood	Victim of crime
Chronic hyperventilation	Unemployment	Problem neighbours
Excess cold	Perfectionism	Racial harassment
Illness	Loneliness	
Smoking	Low self-esteem	
Hypoglycemia	Low levels of assertion	
Lack of relaxation	People pleasing	
Surgery	Boredom	
Chronic pain	Negative self-talk	
	Personality	
	Rigid thinking style	
	Excessive self-criticism	
	Exams	
	talks/presentations	

(Lazarus & Folkman, 1984)

Theories/Models of Stress

- **Fight or Flight Response**

Cannon initially termed stress as the emergency response and further elaborated that stress had its source in fighting emotions (Nelson and Quick, 2012). He put forth the fight or flight response with regard to stress. As per Cannon (1932), stress arises from an external environmental demand that causes an imbalance in an individual's natural steady state. He further stated that body has got a natural defence mechanism that maintains the homeostasis. Therefore, when faced with a dangerous situation, a person will either prepare to fight the threat or may flee the situation. A few physiological changes accompany this, which gets him/ her to fight or flight. As a result, there is an imbalance that disturbs the body's homeostasis. However, the body will return to normal and homeostasis will be restored once the situation has passed and there are no longer any threats or challenges.

- **Systemic stress: Hans Selye's theory**

Hans Selye (1976) put forth three stages that are experienced by an individual when he/ she is in a situation that is stressful. Selye argued that the organism's "stress" reactions were a universal set of generalized physiological reactions shared by all living things subjected to a range of environmental stressors, such as exposure to noise or temperature changes. According to him, there was no discernible pattern to the stress response, regardless of the kind of stressor encountered. In other words, a wide variety of external stressors elicited an identical or general stress response. He termed this nonspecific response as General Adaptation Syndrome (GAS), which consisted of three stages (Alexander, 2008).

a. ***The alarm phase*****:** In response to an immediate threat, the body triggers the sympathetic nervous system. Any strong emotion causes the adrenal hormones, nor-epinephrine and adrenaline, to be released, which causes tense muscles and an increase in energy, decreased pain sensitivity, the inhibition of digestion.

b. ***The resistance phase*****:** In the second stage, that is 'resistance', the adaptation is maximum and the equilibrium is restored. Much energy is needed during this stage as well, so nonessential processes like digestion, the immune system, or even the reproductive system are not given any energy. As a result, the person keeps having physiological changes, like elevated blood pressure and pulse rate, fast breathing, and so forth. The primary goal of these actions is to bring the balance or equilibrium back. Though, if the stress is still experienced and the defence mechanisms are inactive then the individual will experience the third and last stage.

c. ***The exhaustion phase*****:** Adaptive mechanisms collapse during the final stage, known as "exhaustion" (Cartwright and Cooper, 1997). The breakdown of adaptation mechanisms and a reduction in physiological resources lead to exhaustion. An individual's physiological resources diminish after prolonged stress, which may have an adverse effect on the individual's physical health.

- **Cognitive Appraisal Model**

Two concepts are central to any psychological stress theory: appraisal, or an individual's assessment of the significance of what is happening for their well-being

and coping, or an individual's efforts to manage particular demands through thought and action (Lazarus, 1993). According to the cognitive appraisal model, when a person encounters a stressful situation, they evaluate it using both primary and secondary appraisal. The primary evaluation is based on the detrimental impact of stress on the person's physical and psychological characteristics. Additionally, a secondary evaluation is conducted to determine whether the person has the resources necessary to handle the stressful circumstance and prevent its negative consequences.

- **Diathesis- Stress Model**

  The Diathesis- Stress Model (Monroe & Simons, 1991) proposes that two continuously interacting factors jointly determine an individual's susceptibility to stress and illness: predisposing factors that establish a person's vulnerability to illness and precipitating factors from the environment. This model emphasizes how a person's environment and genetics interact to determine whether or not they will experience stress. This theory also suggests that stress is influenced by both environment and heredity, working in concert to determine stress levels.

- **Person- Environment Fit Model (P-E Fit)**

  French, Harrison, and Caplan proposed this model in 1982 (Ghosh, 2015). The fundamental tenet of this model is that people differ from one another in terms of their needs and capacities, and that stress arises when demands are not aligned with an individual's available resources. A student who is well prepared for one of the important presentations in his/ her school will look at this as an opportunity and not threat and thus will not experience any significant stress. But if the demands of the environment are high and the student feels that he/ she does not possess adequate resources or ability to carry out the presentation, then he/ she will experience stress.

- **Theory of helplessness and stress**

  According to this theory, stress results in a helpless feeling. When an individual's resources cannot keep up with the demands of their environment, stress arises. The fact that controlled events cause less stress than uncontrollable ones suggests that stress is determined by experience or evaluation. Seligman (1975) gave the model of helplessness in his theory of learned helplessness. The fundamental aspect of learned helplessness is that when a person's control attempts are consistently ineffective, they cease trying to achieve a specific goal and also lose control over other situations in which they are able to do so with ease. Learned helplessness creates three deficits within the individual.

- ***Motivational lack*:** This makes the person lose motivation. The individual who has learned helplessness stops trying to influence the results and adopts a passive attitude.
- ***Cognitive deficit:*** It results in a cognitive deficit because the helpless individual is unable to acquire new reactions that would enable him to evade the unpleasant circumstances or stimuli.
- ***Emotional disturbance:*** Every time a person experiences a new or unpleasant situation, learned helplessness can result in mild to severe depression (Seligman, 1975).

REVIEW OF LITERATURE

Studies on sources of stressors of adolescent students

Adolescent stress and stress-related mental health complaints are common and have been increasing over the past decades. Stress is indicative of an imbalance between the individual and his or her environment and that something is at stake. Studying the sources to which adolescents ascribe their stress as well as cognitive mechanisms driving the development of increases in stress-related mental health problems is an important effort as it will provide insight into possible targets for preventive intervention. Adolescents are particularly vulnerable to stress as the transitions occur at an individual and social level.

Sources of stress for adolescents can be described under the following headings.

1. Academic related stressors
2. Relationship related stressors
3. Transitions in adolescent related stressors
4. Digital stress in adolescents

- **Academic related stressors**

Reddy et al. (2017) reviewed the academic stress among adolescents highlighting the impact and sources of academic stress. Increased stress levels have lasting effects on physiological and cognitive functions in the body. Impairment in any of the systems led to reduced performance and decreased overall well-being of the individual. Factors like frequent examinations, excessive assignments, poor time management skills, poor social relationships and peer competition have been found to be primarily responsible. The challenge is increased by the excessive demands and expectations placed on the students. The educational system and the institutions play an enabling role. They also found that the incidence of stress is not a stream specific situation.

Verma and Gupta (1990) explored academic pressures among 60 school children (aged 12–15 years) to enable teachers and parents to assist children in coping with academic stress. Students scored high on academic anxiety and were matched on age, sex, and IQ. The Interview Schedule-cum-Checklist was used. Academic stress was found to be caused by the examination system, burden of homework, and the attitudes of parents and teachers. Symptoms of Academic stress were categorized as physiological, psychological, and behavioral.

- **Relationship related stressors**

Seiffge-Krenke et al. (2013) investigated how 2000 adolescents from middle-class families in six countries perceived and coped with parent-related and peer-related stress. They found that parent related stress was greater or equal to peer-related stress. Female

adolescents predominantly reported higher levels of peer-related stress than male adolescents. Adolescents in all countries used negotiating and support-seeking to cope with relationship stress more often than emotional outlet or withdrawal. Parent related stress leading to withdrawal was found to be greater compared to peer related stress. Results suggested that adolescents coped fairly well but what they perceived as stressful and the way they coped varied between countries.

Mates and Allison (1992) used a series of focus group interviews to identify major sources of stress and coping responses of Grade 10 students. They found relationships with parents and family, work, and lack of money as important sources of stress. The major coping responses used by them included substance use and diversionary activities. Differences between academic streams (tracks) in sources of stress and coping responses were also examined.

- **Transitions in adolescent related stressors**

Roy et al. (2015) did a cross sectional study on 1153 high school boys with an aim to assess the prevalence and determinants of stress and its tolerance levels among them. The prevalence of stress and its tolerance levels was found to be 55% and 33.7%, respectively. Also correlations suggest that parental education and occupational status play a significant role in adolescent stress. They also stressed upon designing suitable stress management programs for adolescents that could reduce their stress levels.

- **Digital stress in adolescents**

Winstone et al. (2023) studied the types of social media use and digital stress in early adolescence. They conducted in-depth interview on 13-14 year olds. Interviews were transcribed verbatim, coded and thematically analysed. Generation of themes was done based on digital stressors specific to passive social media use (time-wasting and digital guilt, and exposure to harmful content); private social media communication (expectations of availability and unsolicited contact by strangers); and social media broadcasting (expectations of perfection and sexualisation, fear of negative evaluation and risks to privacy). Several digital stressors were found to be pervasive in social media use on everyday basis. Improving social and emotional resources offline and encouraging effective implementation of privacy settings may improve resilience against several sources of digital stress.

Impact of stressors on adolescents:

Iakunchykova et al. (2015) aimed to examine the association between early life stress and early initiation of alcohol and tobacco use. They did a longitudinal study 1020 mother-child pairs. When study children reached ages 3 and 7, their mothers completed questionnaires about their children's exposure to and impact from a standard list of recent stressful life events. From the data on event prevalence and severity, we assigned each child to low, medium, or high early life stress. When the children became age 16, they completed questionnaires about their history of smoking and drinking. The result was found using

multivariate analysis, indicated that girls with high stress at age 3 had 2.2 times (95% confidence interval: 1.23-4.08) higher odds than girls with low stress to start smoking early.

Ten Brink et al. (2021) examined whether adolescents shows sleep-stress spiral in which greater stress worsens sleep quality, which amplifies stress, which leads to worse sleep , and if so, whether coping self-efficacy—believing one can cope with stress—interrupts the spiral. Temporal dynamics of perceived stress, sleep quality, and coping self-efficacy were tracked in 381, 9th graders (49% female, mean age 14.43, age range 14–16) using daily surveys across two school weeks (3184 observations). Though expected associations were evident between individuals, only a unidirectional path was found within individuals from sleep quality to perceived stress via coping self-efficacy. This challenged the conventional bidirectional understanding of sleep-stress relations. They also suggested coping self-efficacy as an intervention target.

Verdejo-Garcia et al. (2015) experimentally examined if adolescents with excess weight are more sensitive to social stress and hence more sensitive to harmful effects of stress in cognition. For this they classified 84 adolescents aged 12 to 18 years old in two groups based on age adjusted Body Mass Index percentile. Both groups were exposed to social stress as induced by the virtual reality version of the Trier Social Stress Task – participants were requested to give a public speech about positive and negative aspects of their personalities in front of a virtual audience. The outcome measures were salivary cortisol levels and performance in cognitive tests before and after the social stressor. Cognitive tests included the CANTAB Rapid Visual Processing Test (measuring attention response latency and discriminability) and the Iowa Gambling Task (measuring decision-making). The result showed that increased cortisol response and less improvement of attentional performance after the social stressor in adolescents with excess weight compared to healthy weight controls. In both groups, decision-making performance decreased after the social stressor.

Pascoe et al. (2020) did a narrative review and highlighted that students commonly report high levels of academic related stress, cross-culturally. The academic-related stress experienced by secondary and tertiary students' impacts their mental and physical health and leads to a range of academic problems. The on-going stress relating to education has demonstrated negative impact on students' learning capacity, academic performance, education and employment attainment, sleep quality and quantity, physical health, mental health and substance use outcomes. An important target highlighted was increasing students' stress-management skills and abilities.

Assessment of stress in asolescents:

Jagannathan et al., (2022) aimed to assess the reliability and validity of the Adolescence Stress Scale (ADOSS) for Indian Adolescents. The original versions of the adolescent stress questionnaire and academic stress scale with a few new items were used to make the item pool for the questionnaire development. Salivary cortisol was used as an

objective measure of stress in 40 adolescents. It is a 20 item scale, comprising of four factors namely personal, academic, family and social obtained from exploratory factor analysis. Convenience sampling was used to recruit an equal percentage of both sexes in the age group of 10 to 17 years between 8th and 10th grades. Test-retest agreement was Kappa: 0.63, P= 0.001 and inter-rater reliability was 0.84. Pearson correlation showed a statistically significant positive correlation between cortisol levels and ADOSS scores ($r = 0.87$, $P = 0.001$).

The Depression Anxiety Stress Scale (DASS) is a 42 item, self-reported measurement scale of depression, anxiety and stress. Singh et al., (2013) aimed to obtain reliability and validity of Hindi adaptation of Depression, Anxiety and Stress scale. The study included 427 bilingual volunteers in total. Chronbach alpha for entire scale .83, factor loading of the Hindi version was found to be comparable with the original scale, ranging from.20 to.88. Items on the Stress Scale measure symptoms that are not assessed by the BAI, such as tension, irritability, and a propensity to overreact to stressful situations. It focussed on the question whether the previous findings pertaining to the reliability and validity as well as simple factor structure of DASS can be generalized to participants for whom English is a second and sometimes third language.

A comprehensive self-report "Adolescence Stress Scale" was developed by Hariharan et al. (2023) using data from 634 Indian school-age adolescents (aged 11 to 18). Three stages were involved in developing the scale: factor analysis, validity and reliability testing, and item construction. It is a 31 item scale with 10 factors, obtained through exploratory factor analysis. The 3-week test-retest reliability was 0.57 with correlation significant at the 0.01 level. Using the Children's Happiness Scale 26 and GHQ-1227 (Goldberg & Williams, 1988), the concurrent validity of the scale was established. The major limitation of this scale is that it is not generalizable to all culture; it does not account for the experiences of non- school goers. Since the participants were asked to retrieve the past events accurately, there could have been some recall bias and the stressors being unnoticed.

PROBLEM TO BE INVESTIGATED

Development of Scale for Assessment of Stress in Indian Adolescents: A self and teacher report measure. Although there are foreign measures of stress, there is a dire necessity of a scale measuring the stress of an average Indian adolescent. There are many items on these foreign scales, which seem to be out of place in the Indian milieu. Also, since average Indian adolescent remains emotionally and financially dependent on the parents, a need for inclusion of family / parent-related events was felt as they were found to be missing from western scales. Most of the scales are adapted rather than developed. This scale will be developed keeping in view the cultural contexts and the current factors contributing to stress in adolescents. The sample will include students from both rural and urban areas and will be developed in both English and Hindi language having both the forms self-report and teacher report.

AIM OF THE STUDY

To develop the scale for Assessment of Stress in Indian Adolescents: A self and teacher report measure

OBJECTIVES OF THE INVESTIGATION AND MOTIVATION

Objectives of the study:

1. To develop the scale for assessment of stress in Indian adolescents
2. To assess the test-retest and internal consistency reliability of Scale for assessment of stress in Indian adolescents
3. To assess the construct, content and concurrent validity of scale for assessment of stress in Indian adolescents
4. To develop the norms of scale for assessment of stress in Indian adolescents

Motivation:

- To achieve wholesome adolescent health, there is dire need to understand the stress experienced by the adolescent's on a regular basis by the teachers as well as self. It can be an effective tool to safeguard our future generation from the mental health problems that have roots in the adolescence. Though there has been awareness related to stress in India but there is still a lag of appropriate tools to identify the vulnerable adolescents especially in the rural areas. The teachers are sometimes blamed for the poor performance of the adolescents. This tool can assist them in identifying such adolescents who needs extra attention. This study will inspire further studies in this field. It would also add to existing literature on stress in adolescents by taking into consideration the limitations of previous researches.

Research Design and Methodology

Scope of the study:

This study will be conducted at various English/Hindi medium schools across Ranchi, Jharkhand.

Research design

This study will be a school based cross sectional study. The proposed research will be conducted in two phases: -

- **Phase 1:** Development and finalization of items for scale and assessment of reliability and validity.
- **Phase 2:** Development of norms for the scale developed in phase 1.

Phases of the study

Phase 1:

***Objectives of phase 1*:**

This phase will involve development and finalization of items for scale and assessment of reliability and validity.

Item development:

In this phase, item pool will be developed by the researcher to quantify the statements. This will be done through literature review, assessment of existing scales, interview with the adolescents, their teachers and parents. If a requirement is felt, the researcher will conduct focus group discussions for generation of sufficient number of unambiguous items. In the development of items, the form of the items, the wording of the items, and the types of responses that the question is designed to induce will be considered. Expert opinion (from mental health professionals, researchers working in this field) will be taken. The opinion from the experts will be followed and necessary changes will be made. Items will be finalised after doing item analysis and factor analysis.

Testing the Reliability:

Reliability of the prepared scale will be assessed for internal consistency and test-retest reliability.

Testing the validity:

Content validity will be assessed by taking expert group opinion and concurrent validity will be established.

Sample:

The phase 1 of the study will be conducted on 50 adolescents of both genders, age range between 12-18 years. The participants will be selected from various English/Hindi medium schools (govt. and private) from both urban and rural area of Ranchi, Jharkhand. Stratified random sampling will be employed for selection of the participants.

Tools:

- **Socio-demographic and clinical data sheet**

  This data sheet will be developed by the researcher to gather socio-demographic, clinical and academic details of the adolescent participants. Socio-demographic profile will contain adolescent's age, gender, education, religion, socioeconomic status, residence and family type etc.

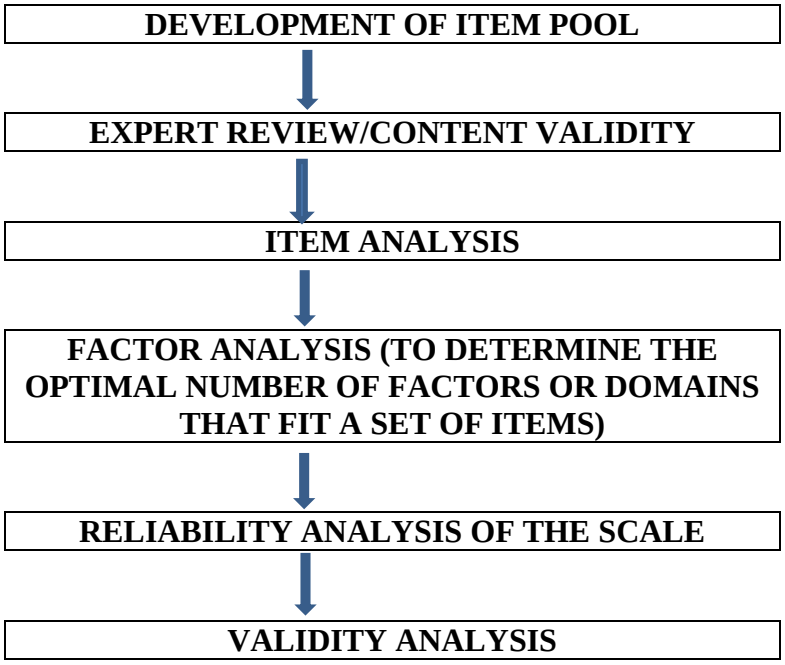
- **Adolescence Stress Scale (ADOSS) for Indian Adolescents**:
  Adolescence Stress Scale (ADOSS) for Indian Adolescent is a scale developed by Jagannathan et al., (2022) aimed to assess the reliability and validity of the Adolescence Stress Scale (ADOSS) for Indian Adolescents. It is developed for adolescents from the age range of 10-17 years. The original versions of the adolescent stress questionnaire and academic stress scale with a few new items were used to make the item pool for the questionnaire development. Salivary cortisol was used as an objective measure of stress in 40 adolescents. It is a 20 item scale, comprising of four factors namely personal, academic, family and social obtained from exploratory factor analysis. Test-retest agreement was Kappa: 0.63, P= 0.001, and inter-rater reliability was 0.84. Pearson correlation showed a statistically significant positive correlation between cortisol levels and ADOSS scores ($r = 0.87$, $P = 0.001$).

Procedure:

Various govt. and private schools of Ranchi district will be approached and permission to collect data will be obtained. Adolescents meeting the inclusion and exclusion criteria will be selected using stratified sampling procedure. Informed consent will be taken from the adolescent participant, guardian and teachers of the adolescents. The relevant details on socio-demographic and clinical data sheet will be collected. This will be followed by administration of Adolescence Stress Scale (ADOSS) as a reference for comparison.

Thereafter, the stress scale for Indian adolescents: A self and Teacher report measure will be administered on adolescent participants and their teachers for further standardization by assessing the test-retest reliability, internal consistency reliability, content, construct and concurrent validity respectively.

Procedure (Flow Chart) of Phase-1


DEVELOPMENT OF ITEM POOL
EXPERT REVIEW/CONTENT VALIDITY
ITEM ANALYSIS
FACTOR ANALYSIS (TO DETERMINE THE OPTIMAL NUMBER OF FACTORS OR DOMAINS THAT FIT A SET OF ITEMS)
RELIABILITY ANALYSIS OF THE SCALE
VALIDITY ANALYSIS

Statistical analysis:

Appropriate statistical analysis (item analysis, factor analysis, test to assess reliability and validity etc.) will be carried out.

Phase 2:

***Objectives of phase 2*:**

This phase will involve development of norms of the scale developed by the researcher.

Sample:

The phase 2 of the study will be conducted on 300 adolescents of both genders (150 boys and 150 girls) falling in the age range of 12-18 years. The participants will be selected from various English/Hindi medium schools in both urban and rural area. Stratified random sampling technique will be employed. For construction of norms age, gender and rural/urban background will be considered.

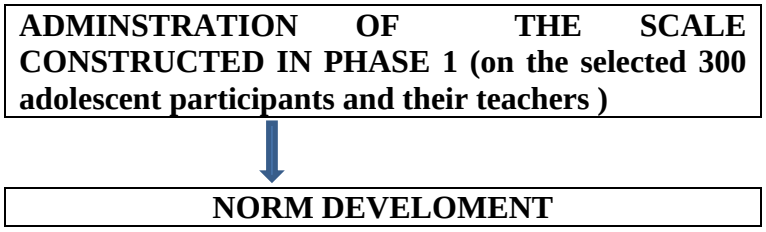
Tool:

Scale developed by the researcher

Procedure:

A separate set of 300 Adolescents participants of both genders, meeting the inclusion and exclusion criteria will be selected using stratified sampling procedure. Informed consent will be taken from the adolescent participant, guardian and teachers of the adolescents. The relevant details on socio-demographic and clinical data sheet will be collected. After this the tool developed by the researcher in phase 1 will be administered on the selected participants for the development of the norms considering age, gender and rural/urban background.

Procedure (Flow Chart) of Phase-2


ADMINSTRATION OF THE SCALE CONSTRUCTED IN PHASE 1 (on the selected 300 adolescent participants and their teachers)
NORM DEVELOMENT

Statistical analysis:

Appropriate statistics will be used for development of the norms.

Inclusion Criteria:

- Adolescents in the age group of 12-18 years
- Either gender male or female
- Adolescents who will be able to comprehend and understand Hindi/English
- Adolescents whose parents/teachers will give informed consent and teachers who are available to participate in the study

Exclusion Criteria:

- Presence of significant medical/neurological disorders (known history)
- Adolescents having comorbid psychiatric conditions
- Adolescents with history of Intellectual disability
- Adolescents with severe physical illness

SIGNIFICANCE OF THE STUDY:

Among the school going adolescent population, a large number of the students have psychosocial impairment due to stress. Student experiencing significant stress are not able to cope properly with the stress which affect their adjustment and academic performance. Rejection from the peers and poor self-esteem causes development of various internalizing and externalizing problems. With this intent, school authority, teachers can easily identify the vulnerable adolescents using the tool.

To the best of researcher's knowledge there are only limited tools designed to assess the stress in adolescents that too keeping the socio-cultural context in consideration. Most of the tools are either adaption of the foreign tools or can be either self-administered or administered by the teacher/parents. This tool will be available in both the English and Hindi languages along with self and teacher report versions. Also, this tool can further be used for planning effective interventions.

RELEVANCE TO THE PRESENT-DAY PROBLEM AND NEED TO THE SOCIETY

Stress goes undetected in many adolescents in Indian society mostly because of the unavailability of suitable tools for assessment. India has the largest adolescent population in the world. The adolescents constitute about 21% of Indian population. They are the future of the nation, forming a major demographic and economic force. It is a period of preparation for undertaking grater responsibilities like familial, social, cultural and economic issues in adulthood. Many serious diseases in adulthood have their roots in adolescence. In India suicide among adolescents is higher than any other age group that is 40% of suicide deaths in men and 56% of suicide deaths in women occurred in 15–29 y of age (Patel et al., 2012). Therefore it becomes essential to develop a tool specific for Indian adolescents. Development of such tools, based on our requirements can be very useful in detecting the vulnerable adolescents and eliminate any risk factors as early as possible.

CONTRIBUTION TO EXISTING KNOWLEDGE

The world is changing rapidly each passing day. With the advent of technology and new means comes a new challenge as well. There is a lot of literature on the stress in adolescent. But there is a paucity of the available tools to measure it, keeping in consideration

the socio-cultural norms and the new types of stressors post COVID-19. The present study will try to fill in this gap to an extent. It will also help to understand the differences of opinion between teachers and students perception of stress. Consequently the current study is planned to develop and standardize the scale for assessment of stress in Indian adolescents.

FUTURE WORK:

Future work may be carried out in the respective area contributing to more understanding considering the following issues:

The current self and teacher report measure for assessment of stress in Indian adolescents can be considered effective only if it is being generalized. Hence, generalization is an important issue. Further after standardization it is suggested that large sample of adolescent may be chosen for study in future for better understanding of the findings and establishing its effectiveness.

Findings from the tool can be of immense help to the clinician, educational professionals, parents and teachers to identify the adolescents with significant level of stress and provide timely intervention thereby preventing serious mental health problems.

The scale can be adapted in local languages so as to identify the stress in adolescent students studying in their vernacular languages.

TENTATIVE CHAPTERS OF THE THESIS

INTRODUCTION

REVIEW OF LITERATURE

RESEARCH DESIGN AND METHODOLOGY

- Aim and objectives of the study
- Research Design
- Sample
- Tools
- Procedure
- Statistical Analysis

RESULTS

DISCUSSIONS

SUMMARY AND CONCLUSION

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Note: This synopsis is tentative, which may be modified or changed based on the availability of cases; tools; techniques and other situations.

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